

TINCH-POUND

MIL-R-10509F
AMENDMENT 7
19 April 1989
~~SUPERSEDING~~
AMENDMENT 6
29 July 1987

MILITARY SPECIFICATION
RESISTORS, FIXED, FILM (HIGH RELIABILITY),
GENERAL SPECIFICATION FOR

This amendment forms a part of MIL-R-10509F, dated 15 June 1965, and is approved for use by all Departments and Agencies of the Department of Defense.

PAGE 3

1.2.1.3, add the following sentence at the end of the paragraph:

"Resistance values not listed in table III for tolerances F and D shall be considered as not conforming to the specification."

PAGE 5

2.1, FEDERAL SPECIFICATIONS: Delete in its entirety.

2.1, MILITARY SPECIFICATIONS: Delete "MIL-P-116 - Preservation, Methods of" and substitute "MIL-R-39032 - Resistors, Preparation for delivery of".

2.1, MILITARY STANDARDS: Delete "MIL-STD-129 - Marking for Shipment and Storage" and substitute "MIL-STD-1285 - Marking of Electrical and Electronic Parts".

PAGE 6

3.9, delete "Temperature cycling." and substitute "Thermal shock." Make this same change whenever "Temperature cycling" appears in this specification.

PAGE 9

3.20, delete "Shock, medium impact." and substitute "Shock (specified pulse)." Make this same change wherever "Shock, medium impact" appears in this specification.

3.22, delete and substitute:

"3.22 Marking. Resistors shall be marked with the type designation, "JAN" marking, and the manufacturer's name, trademark, or code symbol. At the option of the manufacturer, the type designation may appear on two lines. In this event, the type designation shall be divided between the characteristic letter and the first digit of the resistance value as shown in the following example:

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RN60D
1003FJ

If lack of space on styles RN50 and RN55 require it, marking may consist of the resistance value, tolerance, and "JAN" marking as shown in the following example:

1003
FJ

If this method is used, the complete marking shall be marked on the package. Marking on the units shall remain legible at the end of all tests.

- " 3.22.1 JAN and J marking. The United States Government has adopted, and is exercising legitimate control over the certification marks "JAN" and "J", respectively, to indicate that items so marked or identified are manufactured to, and meet all the requirements of military specifications. Accordingly, items acquired to, and meeting all of the criteria specified herein and in applicable detail specifications shall bear the certification mark "JAN" except that items too small to bear the certification mark "JAN" shall bear the letter "J". The "JAN" or "J" shall be placed immediately before the type number except that if such location would place a hardship on the manufacturer in connection with such marking, the "JAN" or "J" may be located on the first line above or below the type designation. Items furnished under contracts or orders which either permit or require deviation from the conditions or requirements specified herein or in applicable detail specification shall not bear "JAN" or "J". In the event an item fails to meet the requirements of this specification and the applicable specification sheets or detail specifications, the manufacturer shall remove the "JAN" or the "J" from the sample tested and also from all items represented by the sample. The "JAN" or "J" certification mark shall not be used on products acquired to contractor drawings or specifications. The United States Government has obtained Certificate of Registration No. 504,860 for the certification mark "JAN"."

Following 3.23.1, add new paragraph 3.24:

"3.24 Resistance to solvents. When resistors are tested as specified in 4.6.17, there shall be no evidence of mechanical damage and the markings shall remain legible."

PAGE 11

TABLE V, Group V, delete and substitute:

Examination or test	Requirement paragraph	Method paragraph	Number of defectives allowed <u>1/</u>
<u>Group V - 10 sample units</u>			
Solderability	3.19	4.6.14	1
Resistance to solvents	3.24	4.6.17	
Shock (specified pulse)	3.20	4.6.15	
Vibration, high frequency	3.21	4.6.16	
Seal (as applicable) <u>3/</u>	3.8	4.6.3	

PAGE 12

4.5.1, add the following sentence:

"Delivery of shipment shall not be delayed pending completion of group C testing."

PAGE 13

4.5.1.5.1.2, following the second sentence, add: "If none of these resistance values are produced during the quarter, resistors of the highest resistance value produced shall be inspected."

4.5.1.5.1.3, delete and substitute:

"4.5.1.5.1.3 Semiannually. Every 6 months, 10 sample units of each style, characteristic, and body enclosure of any resistance value between the critical and the highest resistance value shall be inspected. If none of these resistance values are produced during this period, resistors of the highest resistance value produced shall be inspected with one defective allowed."

PAGE 14

TABLE VIII, Semiannually, delete and substitute:

Test	Number of sample units to be inspected	Requirement paragraph	Method paragraph
<u>Semiannually</u>			
Solderability	10	3.19	4.6.14
Resistance to solvents		3.24	4.6.17
Shock (specified pulse)		3.20	4.6.15
Vibration, high frequency		3.21	4.6.16
Seal (as applicable)		3.8	4.6.3

PAGE 15

4.5.2, delete and substitute:

"4.5.2 Packaging inspection. Sample packages and packs, and the inspection of the preservation-packaging, packing, and marking for shipment and storage shall be in accordance with MIL-R-39032."

4.5.3, delete and substitute:

"4.5.3 Retention of qualification. To retain qualification, the contractor shall forward a report at 6-month intervals to the qualifying activity. The qualifying activity shall establish the initial reporting data. The report shall consist of:

- (a) A summary of the results of the tests performed for inspection of product for delivery (groups A and B), indicating as a minimum the number of lots that have failed. The results of tests of all reworked lots shall be identified and accounted for.
- (b) A summary of the results of tests performed for qualification verification inspection (group C), including the number and mode of failures. The summary shall include results of all qualification verification inspection tests performed and completed during the 6-month period. If the summary of the test results indicates nonconformance with specification requirements, and corrective action acceptable to the qualifying activity has not been taken, action may be taken to remove the failing product from the qualified products list.

Failure to submit the report within 30 days after the end of each 6-month period may result in loss of qualification for the product. In addition to the periodic submission of inspection data, the contractor shall immediately notify the qualifying activity at any time during the 6-month period that the inspection data indicates failure of the qualified product to meet the requirements of this specification.

In the event that no production occurred during the reporting period, a report shall be submitted certifying that the company still has the capabilities and facilities necessary to produce the item. If during 2 consecutive reporting periods there has been no production, the manufacturer may be required, at the discretion of the qualifying activity, to submit his qualified products to testing in accordance with the qualification inspection requirements."

Following 4.5.3, add new paragraph 4.5.4:

"4.5.4 Alternate inspection. For the purpose of retention of qualification and quality conformance inspection (see 4.4, 4.5, and 4.5.3), test data on identical items covered by MIL-R-55182 may be used."

PAGE 16

4.6.4, delete and substitute:

"4.6.4 Thermal shock (see 3.9). Resistors shall be tested in accordance with method 107 of MIL-STD-202. The following details and exceptions shall apply:

- (a) Mounting - Resistors shall be mounted by means other than soldering.
- (b) Measurement before cycling - DC resistance shall be measured as specified in 4.6.2.

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(c) Test condition letter - F.

(d) Measurement after cycling - Within 3 hours after completion of the final cycle and as soon as the resistors stabilize at room temperature, dc resistance shall again be measured as specified in 4.6.2.

Following the test, resistors shall be examined for evidence of mechanical damage."

PAGE 18

4.6.8.1(c), delete and substitute:

"(c) Magnitude of test voltage - Sine wave test potential of 900 volts rms, except that for styles RN50, RN55, and RN60, the potential shall be 450 volts."

PAGE 19

4.6.8.2(d), delete and substitute:

"(d) Test voltage during subjection to reduced pressure - 450 volts rms for all resistors except for styles RN50, RN55, and RN60, which shall have 200 volts applied, respectively."

PAGE 22

4.6.11(d), delete and substitute:

"4.6.11(d) Sub-cycle step 7b shall not be applicable. Step 7a shall be performed during any five of the first nine cycles only. All polarization straps may be removed to perform step 7a and shall then be replaced prior to starting the next cycle."

PAGE 25

4.6.13(c), delete and substitute:

"4.6.13(c) Initial measurements - Measurements may be made inside or outside the chamber.

1. Inside the chamber - When measurements are to be made inside the chamber the initial dc resistance shall be measured after mounting at the applicable test temperature, after temperature stabilization, and within 8 hours of exposure of the resistors to the test temperature. The initial measurement shall be used as the reference temperature for all subsequent measurements under the same condition.
2. Outside the chamber - When measurements are to be made outside the chamber, the initial dc resistance shall be measured after mounting at the room temperature. This initial measurement shall be used as the reference temperature for all subsequent measurements under the same condition."

4.6.15, line 2: Delete "method 205" and substitute "method 213".

4.6.15(c): Delete test condition "C" and substitute test condition "I".

PAGE 26

Following 4.6.16, add new paragraph 4.6.17:

"4.6.17 Resistance to solvents (see 3.24). Resistors shall be tested in accordance with method 215 of MIL-STD-202. The following details shall apply:

- (a) The marked portion of the resistor body shall be brushed.
- (b) The number of sample units shall be as specified in tables V and VIII as applicable.
- (c) Resistors shall be examined for mechanical damage and legibility of markings."

PAGE 27

Section 5, delete in its entirety and substitute:

"5. PACKAGING

"5.1 Packaging requirements. The requirements for packaging shall be in accordance with MIL-R-39032."

PAGE 28

* 6.1, add the following sentences:

"(f) Lead length: Specify 1,000 ± 0.625 , -0.000 inch for tape and reel packaging. If not specified, the lead length shall be in accordance with the appropriate detail specification."

The margins of this amendment are marked with an asterisk to indicate where changes (additions, modifications, corrections, deletions) from the previous issue were made. This was done as a convenience only and the Government assumes no liability whatsoever for any inaccuracies in these notations. Bidders and contractors are cautioned to evaluate the requirements of this document based on the entire content irrespective of the marginal notations and relationship to the last previous issue.

CONCLUDING MATERIAL

Custodians:
Army - ER
Navy - EC
Air Force - 85

Preparing activity:
Army - ER

Agent:
DLA - ES

Review activities:
Army - AR, MI
Navy - AS, OS
Air Force - 11, 17, 99
DLA - ES

(Project 5905-1144)

User activities:
Army - AT, AV, ME
Navy - CG, MC
Air Force - 19